

REMARKS

Claims 2, 10 and 31 are amended. Claims 2-3, 5-6, 8-10 and 31-32 are pending in the application.

Claims 2-3, 5-6, 8-10 and 31-32 stand rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to make and/or use the invention. The Examiner states that the specification does not support the recited mixing step. Without admission as to the propriety of the Examiner's rejection, claim 10 is amended to recite forming a vapor mixture comprising evaporated aluminum oxide and evaporated silicon monoxide in a reaction chamber. The amendment to claim 10 is specifically supported by the specification at, for example, page 11, lines 5-6. Accordingly, applicant respectfully requests withdrawal of the § 112, first paragraph, rejection of claim 10 and of claims 2-3, 5-6, 8-9 and 31-32 which depend therefrom.

Claims 2-3, 5-6, 8-10 and 31-32 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Lee, U.S. Patent No. 5,923,056 in view of Vossen and Kern, Thin Film Processes II, Academic Press (1991), and JP 60-167352 to Fujisada. The Examiner is reminded by direction to MPEP § 2143 that a proper obviousness rejection has the following three requirements: 1) there must be some suggestion or motivation to modify or combine reference teachings; 2) there must be a reasonable expectation of success; and 3) the combined references must teach or suggest all of the claim limitations. Claims 2-3, 5-6, 8-10 and 31-32 are allowable over the cited combination of Lee, Vossen and Kern, and Fujisada for at least the reason that the references, individually or as combined, fail to disclose or suggest each and every element of any of those claims.

As amended, independent claim 10 recites forming an insulating layer of silicon-doped porous aluminum oxide over a substrate by evaporating aluminum oxide, evaporating silicon monoxide, forming a vapor mixture and depositing at least some of the mixture to form the silicon-doped porous aluminum oxide. The amendment to claim 10 is supported by the specification at, for example, page 8, line 17 through page 9, line 4. Lee discloses formation of a silicon-doped aluminum oxide film by reactive sputtering in an oxygen atmosphere utilizing a target comprising aluminum and silicon (col. 5, ll. 59-67). Lee does not disclose or suggest the claim 10 recited method comprising formation of a silicon-doped porous aluminum oxide.

Vossen and Kern discloses direct evaporation of various inorganic compounds (table 3). Vossen and Kern does not disclose or suggest the claim 10 recited forming a silicon-doped porous aluminum oxide. With respect to Fujisada, as indicated by the Examiner at page 5 of the present action, such was cited to show sputter deposition utilizing a sapphire target. Not one of Lee, Fujisada, and Vossen and Kern disclose or suggest the claim 10 recited formation of a silicon-doped porous aluminum oxide. As combined, Lee, Vossen and Kern, and Fujisada fail to disclose or suggest the claim 10 recited forming a layer of silicon-doped porous aluminum oxide by forming and depositing a mixture comprising evaporated aluminum oxide and evaporated silicon monoxide. Accordingly, independent claim 10 is not rendered obvious by the cited combination of Lee, Fujisada, and Vossen and Kern and is allowable over these references.

Claims 2 and 31 are amended to properly depend from base claim 10. Claims 2-3, 5-6, 8-9 and 31-32 are allowable over the cited combination of Lee, Vossen and Kern, and Fujisada for at least the reason that they depend from allowable base claim 10.

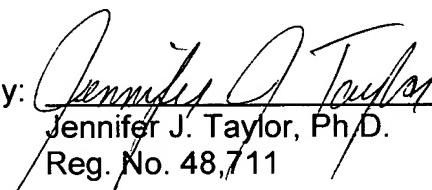
Referring to page 8 of the present action, the Examiner has indicated a belief that the use of the modifier "single crystal" with respect to sapphire is redundant because "the definition of sapphire is that it is a single crystal of aluminum oxide". Applicant requests reconsideration of the position taken by the Examiner and invites exploration of the numerous internet web sites describing "polycrystalline sapphire", and the properties thereof. Applicant further requests reconsideration of applicant's arguments set forth in response to the previous Actions with respect to single crystal sapphire.

For the reasons discussed above, claims 2-3, 5-6, 8-10 and 31-32 are allowable. Accordingly, applicant respectfully requests formal allowance of pending claims 2-3, 5-6, 8-10 and 31-32 in the Examiner's next action.

Respectfully submitted,

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By:

  
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